WE CLAIM:

1. A method of calculating the per logging interval cost of a utility, the method comprising:
a) receiving utility data, rate data and time data, the time data including at least one logging interval;
b) computing at least one cost based on the utility data and rate data, the at least one cost being associated with the at least one logging interval; and
c) outputting the at least one cost.

2. The method of claim 1, wherein the rate data comprises a plurality of charges.

3. The method of claim 2, wherein the at least one logging interval comprises a plurality of logging intervals, and the at least one cost comprises a plurality of costs, wherein each of the plurality of costs is associated with one of the plurality of logging intervals, and the plurality of costs is outputted.

4. The method of claim 3, wherein the utility data comprises at least one of water data, gas data, air data, steam data, emissions data, bandwidth data, and computer processing availability data.

5. The method of claim 3, wherein the utility data comprises electrical data.

6. The method of claim 3, wherein the electrical data further comprises hypothetical data.

7. The method of claim 6, wherein the hypothetical data comprises at least one of past data, future data, scaled data, shifted data, estimated data, edited data, modeled data, and normalized data.

8. The method of claim 3, wherein the plurality of logging intervals span a time period associated with a bill to date.

9. The method of claim 8, wherein the utility data comprises electrical data.

10. The method of claim 3, wherein the plurality of logging intervals span a time period associated with more than one billing period.

11. The method of claim 10, wherein the utility data comprises electrical data.

12. The method of claim 3, wherein the plurality of logging intervals span a time period associated with more than one tariff.

13. The method of claim 3, wherein the plurality of logging intervals span a time period associated with one billing period, and further wherein the utility data comprises both electrical data and hypothetical data.

14. The method of claim 3, wherein the rate data comprises at least one of one a tariff, a plurality of tariffs and real time pricing.

15. The method of claim 3, further comprising:
d) receiving meta data; and
e) outputting the meta data with the plurality of costs.

16. The method of claim 15, wherein the meta data further comprises at least one of a cost center identifier and a billing period identifier.

17. The method of claim 3, wherein b) comprises computing a Flat Distribution.

18. The method of claim 3, wherein b) comprises:

d) determining a spanning interval, the spanning interval having a plurality of spanning logging intervals; and

e) distributing each of the plurality of charges evenly across the plurality of spanning logging intervals.

19. The method of claim 3, wherein b) comprises computing a Weighted Distribution.

20. The method of claim 3, wherein at least one of the plurality of charges comprises a penalty charge, and at least one of the plurality of charges comprises a usage charge and wherein b) comprises:

d) determining a spanning interval, the spanning interval having a plurality of spanning logging intervals;

e) calculating a percentage of the usage charge for each spanning logging interval; and

f) distributing the penalty charge weighted according to the percentage of the usage charge.

21. The method of claim 20, wherein the utility data comprises electrical data.

22. The method of claim 3, wherein b) comprises computing a Zeroing Distribution.

23. The method of claim 3, wherein original utility data is associated with each of said plurality of logging intervals and further wherein b) comprises:

d) determining a spanning interval, the spanning interval having a plurality of spanning logging intervals;

e) calculating a total cost associated with the spanning interval;

f) setting utility data associated with one of said plurality of logging intervals to a value such that the cost of the utility data comprises zero for the one of said plurality of logging intervals;

g) combining the utility data and rate date to create a temporary cost associated with the spanning interval;

h) subtracting the temporary cost from the total cost to create one of said plurality of costs and associating the one of said plurality of costs with the one of said plurality of logging intervals;

i) resetting the utility data associated with the one of said plurality of logging intervals to the original utility data; and

j) repeating f), g), h) and i) for the remainder of each of said plurality of logging intervals.

24. The method of claim 23, wherein the utility data comprises electrical data.

25. The method of claim 23, further comprising:

j) scaling said plurality of costs so that the sum of said plurality of costs is substantially equal to said total cost.

26. The method of claim 3, wherein b) comprises computing a Slicing Distribution.

27. The method of claim 3, wherein each of said plurality of logging intervals has an original resource usage value associated with it, b) further comprising:

d) determining a spanning interval, the spanning interval having a plurality of spanning logging intervals, the plurality of spanning logging intervals each having an original resource usage value;

e) ordering the plurality of spanning logging intervals from greatest to least according to the original resource usage value;

f) creating an assignment set of all intervals;

g) creating a lowest value equal to the lowest resource usage value among all spanning logging intervals;

h) creating hypothetical data by setting a resource usage value for each interval to be equal to the lowest value;

i) creating a running total cost and setting the running total cost to zero;

j) combining the hypothetical data and the rate data to create a temporary cost associated with the spanning interval;

k) subtracting the running total cost from the temporary cost to create a slice cost;
l) distributing the slice cost evenly among each interval in the assignment set;
m) adding the slice cost to the running total cost;
n) resetting the assignment set by excluding all intervals where the associated resource usage is equal to or less than the lowest value;
o) resetting the lowest value to be equal to the lowest resource usage value among all intervals within the assignment set;
p) resetting the hypothetical data by setting the resource usage value for all intervals within the assignment set to be equal to the lowest value, and leaving all intervals not in assignment set at that interval's original resource usage value; and
q) repeating j), k), l), m), n), o) and p) until there are no intervals in the assignment set.

28. The method of claim 27, wherein the utility data comprises electrical data.

29. The method of claim 27, wherein the rate data includes a price tier, the price tier having a price tier value, g) further comprising creating said lowest value to be equal to the lesser of the lowest resource usage value among all spanning logging intervals, and the price tier value; and further wherein o) comprises determining whether the lowest value has exceeded the price tier value, and if so resetting the lowest value to be equal to the lowest resource usage value among all intervals within the assignment set, otherwise resetting the lowest value to be equal to the lesser of the lowest resource usage value among all intervals within the assignment set and the price tier value.

30. The method of claim 3, wherein b) comprises computing a Slicing Distribution with Price Tiers.

31. The method of claim 3, wherein b) comprises computing a Tiered Distribution.

32. The method of claim 3, wherein the rate data includes a price tier, the price tier having a price tier value and further wherein each of said plurality of logging intervals has an original resource usage value associated with it, b) further comprising:

d) determining a spanning interval, the spanning interval having a plurality of spanning logging intervals;

e) creating an assignment set of all intervals;

f) creating hypothetical data by setting the resource usage value for each interval to be equal to the lesser of the interval's original resource usage value and the price tier value;

g) creating a total tier usage by adding together all hypothetical values;

h) combining the hypothetical data and the rate data to create a temporary cost;

i) distributing a portion of the temporary cost to each interval in the assignment set by dividing the hypothetical data for that interval by the total tier usage and multiplying by the temporary cost;

j) resetting the assignment set by excluding all intervals where the usage data was equal to or less than the price tier value;

k) resetting the hypothetical data by setting the resource usage value for each interval to be equal to the interval's original resource usage value;

l) resetting the total tier usage by adding together all hypothetical values and subtracting the previous total tier usage; and

m) repeating h) and i)

33. The method of claim 3, wherein at least one of the plurality of charges is not billed on a logging interval basis.

34. The method of claim 3, wherein the utility data comprises data for at least one resource, the method further comprising:

d) varying the value of the at least one resource to create a plurality of hypothetical values;

e) combining each of the plurality of hypothetical values with the rate data to create a plurality of hypothetical costs, wherein each of the plurality of hypothetical costs is associated with one of the plurality of hypothetical values; and

f) outputting the plurality of hypothetical costs.

35. The method of claim 34, wherein d) comprises varying the at least one resource by percentage increments.

36. The method of claim 34, wherein d) comprises varying the at least one resource by unit increments.

37. The method of claim 34, wherein the at least one logging interval comprises a plurality of logging intervals, further comprising:

g) repeating d) e) and f) for each logging interval.

38. The method of claim 37, wherein the utility data comprises a plurality of resource data, further comprising:

h) repeating g) for each of the plurality of resource data.

39. The method of claim 38, further comprising:

i) identifying logging intervals where the hypothetical costs are sensitive to variations in the hypothetical values of the resource data.

40. A rate engine for use in a utility distribution system, comprising:

an input module operative to accept utility data, rate data and time data, the time data including at least one logging interval;

a processing module coupled with the input module and operative to compute at least one cost based on the utility data and rate data, the at least one cost being associated with the at least one logging interval; and

an output module coupled with the processing module and operative to output the at least one cost.

41. The rate engine of claim 40, wherein the rate data comprises a plurality of charges.

42. The rate engine of claim 41, wherein the at least one logging interval comprises a plurality of logging intervals, and the at least one cost comprises a plurality of costs, wherein each of the plurality of costs is associated with one of the plurality of logging intervals, and the plurality of costs is outputted by the output module.

43. The rate engine of claim 42, further comprising a communication interface coupled with said input module and operative to receive said utility data from at least one measuring device via a network.

44. The rate engine of claim 43, wherein the utility data comprises at least one of water data, gas data, air data, steam data, emissions data, bandwidth data, and MIPS data.

45. The rate engine of claim 43, wherein the utility data comprises electrical data.

46. The rate engine of claim 43, wherein the utility data comprises hypothetical data.

47. The rate engine of claim 46, wherein the hypothetical data represents at least one of data in the past, data in the future, data that has been scaled, data that has been shifted, data that has been estimated, and data that has been edited.

48. The rate engine of claim 42, wherein the plurality of logging intervals span a time period associated with bill to date.

49. The rate engine of claim 48, wherein the utility data comprises electrical data.

50. The rate engine of claim 42, wherein the plurality of logging intervals span a time period associated with more than one billing period.

51. The rate engine of claim 50, wherein the utility data comprises electrical data.

52. The rate engine of claim 42, wherein the plurality of logging intervals span a time period associated with more than one tariff.

53. The rate engine of claim 42, wherein the plurality of logging intervals span a time period associated with one billing period, and further wherein the utility data comprises both electrical data and hypothetical data.

54. The rate engine of claim 42, wherein the rate data comprises at least one of one tariff, a plurality of tariffs and real time pricing.

55. The rate engine of claim 42, further wherein
the input module accepts meta data and
the output module outputs the meta data with the plurality of costs.

56. The rate engine of claim 55, wherein the meta data further comprises at least one of a cost center identifier and a billing period id.

57. The rate engine of claim 42, wherein the processing module performs a Flat Distribution.

58. The rate engine of claim 42, further wherein the processing module
determines a spanning interval, the spanning interval having a plurality of spanning logging intervals; and
distributes each of the plurality of charges evenly across the plurality of spanning logging intervals.

59. The rate engine of claim 42, wherein the processing module computes a Weighted Distribution.

60. The rate engine of claim 42, wherein at least one of the plurality of charges comprises a penalty charge, and at least one of the plurality of charges comprises a usage charge and further wherein the processing module
determines a spanning interval, the spanning interval having a plurality of spanning logging intervals;
calculates a percentage of the usage charge for each spanning logging interval; and
distributes the penalty charge weighted according to the percentage of the usage charge.

61. The rate engine of claim 60, wherein the utility data comprises electrical data.

62. The rate engine of claim 42, wherein the processing module computes a Zeroing Distribution.

63. The rate engine of claim 42, wherein original utility data is associated with each of said plurality of logging intervals, and further wherein the processing module
determines a spanning interval, the spanning interval having a plurality of spanning logging intervals;
calculates a total cost associated with the spanning interval;
sets utility data associated with one of said plurality of logging intervals to a value such that the cost of the utility data comprises zero for the one of said plurality of logging intervals;
combines the utility data and rate date to create a temporary cost associated with the spanning interval;
subtracts the temporary cost from the total cost to create one of said plurality of costs;
associates the one of said plurality of costs with the one of said plurality of logging intervals;

resets the utility data associated with the one of said plurality of logging intervals to the original utility data; and

repeats the setting, combining, subtracting and resetting for the remainder of each of said plurality of logging intervals.

64. The rate engine of claim 63, wherein the utility data comprises electrical data.

65. The rate engine of claim 63, further wherein the processing module scales said plurality of costs so that the sum of said plurality of costs is substantially equal to said total cost.

66. The rate engine of claim 42, wherein the processing module computes a Slicing Distribution.

67. The rate engine of claim 42, wherein an original resource usage value is associated with each of said plurality of logging intervals, and further wherein the processing module

determines a spanning interval, the spanning interval having a plurality of spanning logging intervals, the plurality of spanning logging intervals each having an original resource usage value;

orders the plurality of spanning logging intervals from greatest to least according to the original resource usage value;

creates an assignment set of all intervals;

creates a lowest value equal to the lowest resource usage value among all spanning logging intervals;

creates hypothetical data by setting a resource usage value for each interval to be equal to the lowest value;

creates a running total cost and sets the running total cost to zero;

combines the hypothetical data and the rate data to create a temporary cost associated with the spanning interval;

subtracts the running total cost from the temporary cost to create a slice cost;

distributes the slice cost evenly among each interval in the assignment set;
adds the slice cost to the running total cost;
resets the assignment set by excluding all intervals where the associated resource usage is equal to or less than the lowest value;
resets the lowest value to be equal to the lowest resource usage value among all intervals within the assignment set;
resets the hypothetical data by setting the resource usage value for all intervals within the assignment set to be equal to the lowest value, and leaving all intervals not in assignment set at that interval's original resource usage value; and
repeats the combining, subtracting, distributing, adding, resetting of the assignment set, resetting of the lowest value and resetting of the hypothetical data until there are no intervals remaining in the assignment set.

68. The rate engine of claim 67, wherein the utility data comprises electrical data.

69. The rate engine of claim 67, wherein the rate data includes a price tier, the price tier having a price tier value and wherein when the processing module creates the hypothetical data, the processing module sets said lowest value to be equal to the lesser of the lowest resource usage value among all spanning logging intervals, and the price tier value; and further when the processing module resets the hypothetical data, the processing module determines whether the lowest value has exceeded the price tier value, and if so resets the lowest value to be equal to the lowest resource usage value among all intervals within the assignment set, otherwise resets the lowest value to be equal to the lesser of the lowest resource usage value among all intervals within the assignment set and the price tier value.

70. The rate engine of claim 42, wherein the processing module performs a Slicing Distribution with Price Tiers.

71. The rate engine of claim 42, wherein the processing module computes a Tiered Distribution.

72. The rate engine of claim 42, wherein the rate data includes a price tier, the price tier having a price tier value and further wherein an original resource usage value is associated with each of said plurality of logging intervals, and further wherein the processing module

determines a spanning interval, the spanning interval having a plurality of spanning logging intervals;

creates an assignment set of all intervals;

creates hypothetical data by setting the resource usage value for each interval to be equal to the lesser of the interval's original resource usage value and the price tier value;

creates a total tier usage by adding together all hypothetical values;

combines the hypothetical data and the rate data to create a temporary cost;

distributes a portion of the temporary cost to each interval in the assignment set by dividing the hypothetical data for that interval by the total tier usage and multiplying by the temporary cost;

resets the assignment set by excluding all intervals where the usage data was equal to or less than the price tier value;

resets the hypothetical data by setting the resource usage value for each interval to be equal to the interval's original resource usage value;

resets the total tier usage by adding together all hypothetical values and subtracting the previous total tier usage; and

repeats the combining the hypothetical data and distributing the temporary cost.

73. The rate engine of claim 42, wherein at least one of the plurality of charges is not billed on a logging interval basis.

74. The rate engine of claim 42, wherein the utility data comprises data for at least one resource, further wherein the processing module:

varies the value of the at least one resource to create a plurality of hypothetical values;

combines each of the plurality of hypothetical values with the rate data to create a plurality of hypothetical costs, wherein each of the plurality of hypothetical costs is associated with one of the plurality of hypothetical values; and
outputs the plurality of hypothetical costs.

75. The rate engine of claim 74, further wherein the processing module varies the value of the at least one resource by percentage increments.

76. The rate engine of claim 74, further wherein the processing module varies the value of the at least one resource by unit increments.

77. The rate engine of claim 74, wherein the at least one logging interval comprises a plurality of logging intervals, further wherein the processing module repeats for each logging interval the creating the hypothetical values, the combining the plurality of hypothetical values with the rate data to create a plurality of hypothetical costs and outputting the plurality of hypothetical costs.

78. The rate engine of claim 77, wherein the utility data comprises a plurality of resource data, further wherein the processing module repeats for each of the plurality of resource data, repeating for each logging interval the creating the hypothetical values, the combining the plurality of hypothetical values with the rate data to create a plurality of hypothetical costs and outputting the plurality of hypothetical costs.

79. The rate engine of claim 78, further wherein the processing module identifies logging intervals where the hypothetical costs are sensitive to variations in the hypothetical values of the resource data.

80. A rate engine implemented on a computer, the computer having a processor and a memory coupled with the processor, the rate engine comprising:

first logic stored in the memory and executable by the processor and operable to receive utility data, rate data and time data, the rate data comprising a plurality of charges, the time data comprising a plurality of logging intervals;
second logic stored in the memory, executable by the processor and coupled with the first logic, and operable to compute a plurality of costs based on the utility data and rate data, each of the plurality of costs being associated with one of the plurality of logging intervals; and
third logic stored in the memory, executable by the processor and coupled with the second logic, and operable to output the plurality of costs.

81. A system for calculating the per logging interval cost of a utility, comprising:
means for accepting utility data, rate data and time data from a data source, the rate data comprising a plurality of charges, the time data comprising a plurality of logging intervals;
means for computing a plurality of costs based on the utility data and rate, each of the plurality of costs being associated with one of the plurality of logging intervals; and
means for outputting the plurality of costs.

82. A system for calculating the per logging interval cost of a utility, the system comprising:
a rate engine, the rate engine having:
an input module operative to accept utility data, rate data and time data, the rate data comprising a plurality of charges, the time data comprising a plurality of logging intervals;
a processing module coupled with the input module and operative to compute a plurality of costs based on the utility data and rate, each of the plurality of costs being associated with one of the plurality of logging intervals; and
an output module coupled with the processing module and operative to output the plurality of costs.

83. The system of claim 82, wherein the rate engine further comprises a communication interface coupled with said input module and operative to transmit said utility data to said input module.

84. The system of claim 83, further comprising a network coupled with said communication interface, and operative to transmit said utility data to said communication interface.

85. The system of claim 84, further comprising a measuring device coupled with said network and operative to generate and transmit said utility data to said network.